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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/642,868
Filing Date	November 1, 2000
First Named Inventor	Laddie L. James
Group Art Unit	3752
Examiner Name	Nguyen, Dinh Q.
Attorney Docket Number	9066.002

Total Number of Pages in This Submission 19

ENCLOSURES (check all that apply)

- ☒ Fee Transmittal Form
- ☐ Fee Attached
- ☐ Amendment / Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53

- ☐ Assignment Papers (for an Application)
- ☐ Drawing(s)
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- ☐ Power of Attorney, Revocation Change of Correspondence Address
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- ☐ After Allowance Communication to Group
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- ☐ Proprietary Information
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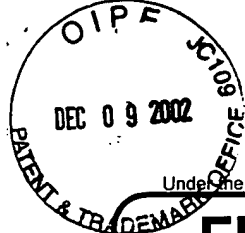
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FEE TRANSMITTAL for FY 2003

Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)
160.00

Complete if Known

Application Number	09/642,868
Filing Date	November 1, 2000
First Named Inventor	Laddie L. James
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Art Unit	3752
Attorney Docket No.	9066.002

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number: 18-2210
Deposit Account Name: Roy, Kiesel, Keegan and DeNicola

The Commissioner is authorized to: (check all that apply)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	740	2001	370	Utility filing fee	
1002	330	2002	165	Design filing fee	
1003	510	2003	255	Plant filing fee	
1004	740	2004	370	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims		Extra Claims		Fee from below		Fee Paid
Independent		-20** =		X		
Multiple Dependent		-3** =		X		

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	400	2252	200	Extension for reply within second month	
1253	920	2253	460	Extension for reply within third month	
1254	1,440	2254	720	Extension for reply within fourth month	
1255	1,960	2255	980	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,280	2453	640	Petition to revive - unintentional	
1501	1,280	2501	640	Utility issue fee (or reissue)	
1502	460	2502	230	Design issue fee	
1503	620	2503	310	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
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8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	740	2809	370	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	740	2810	370	For each additional invention to be examined (37 CFR 1.129(b))	
1801	740	2801	370	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

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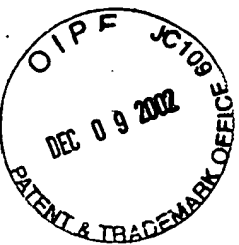
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Name (Print/Type)	R. Bennett Ford	Registration No. (Attorney/Agent)	39,193	Telephone	(225) 927-9908
Signature	<i>R. Bennett Ford</i>	Date	December 3, 2001		

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IN THE UNITED STATES OF AMERICA
PATENT AND TRADEMARK OFFICE

APPLICANT: Laddie L. James TITLE: Improved Tack Spraying Apparatus
SERIAL NO.: 09/642,868 ART UNIT: 3752
FILING DATE: November 1, 2000 EXAMINER: Nguyen, Dinh Q.
DOCKET NO.: 9066.002

The Honorable Commissioner of
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Hazel M. Brown
Hazel M. Brown



IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

#11
12-11-02

APPLICANT: Laddie L. James TITLE: Improved Tack Spraying Apparatus
SERIAL NO.: 09/642,868 ART UNIT: 3752
FILING DATE: November 1, 2000 EXAMINER: Nguyen, Dinh Q.
DOCKET NO.: 9066.002

BRIEF IN SUPPORT OF APPEAL

The Honorable Commissioner of
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Dear Sir:

This brief in support of the applicant's appeal is believed to be timely filed. However, if any extension of time is required, please consider this a request therefor. No additional fees are believed to be due at this time; however, if any are due the Commissioner is authorized and respectfully requested to charge the same to deposit account no. 18-2210.

The examiner's rejections are respectfully traversed, and the Board is respectfully requested to reverse the examiner's rejections of the applicant's claims for the reasons detailed below.

I. Real Party in Interest

The real party in interest is Laddie L. James

II. Related Appeals and Interferences

None.

12/10/2002 CV0111 00000048 182210 09642868
01 FC:2402 205234 10 CH 00 061 160.00

III. Status of Claims

Claims 1-21 Rejected for obviousness under 35 U.S.C. § 103

IV. Status of Amendments

No amendments have been filed subsequent to the entry of the final office action.

V. Summary of the Invention

The invention is a tack spraying device. It includes an engine that is mountable on the vehicle such as truck 2. Typically, the engine will be the engine that powers the vehicle. The engine must be a kind that generates exhaust gases, such as a combustion engine. The engine must have an exhaust pipe 13 which is connected by an exhaust line 14 to a storage tank 1. Tack 5 is kept in storage tank 1, and storage tank 1 must be suitable for storing tack 5 under pressure. Exhaust line 14 will allow exhaust gases to be vented into storage tank 1, whereby storage tank 1 may be pressurized. Finally, there is a second line 19 that connects storage tank 1 to a spray nozzle 22. The pressure in tank 1 from the exhaust fumes will provide the motive force for expelling tack 5 from tank 1 through spray nozzle 22 and onto a desired surface. Nozzle 22 is appropriately sized to prevent polymer balls in tack 5 from clogging nozzle 22. *See*, Specification, pg. 5, ln. 5 -- pg. 9, ln. 12; *See, also*, Figures 1-5.

VI. Issues

Whether the examiner has established a *prima facie* case that claims 1-21 are obvious under 35 U.S.C. § 103 in view of U.S. Patent 5,552,543 to Herzog ("Herzog") and U.S. Patent 4,828,429 to Kirchner ("Kirchner").

VII. Grouping of the Claims

The claims may be properly grouped as follows:

1. Claims 1-6; 12; 13-18. These claims do not rise or fall with any other claims.
2. Claims 7-11; and 19-21. These claims do not rise or fall with any other claims, except to the extent that they would be allowable if the claims on which they depend would be allowable.

VIII. Argument

A. Claims 1-6 and 12-18

Claims 1 and 13 are independent claims. They are set out below.

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1. A tack spraying device mounted on a vehicle comprising:<ol style="list-style-type: none">a. an engine having an exhaust pipe for emitting exhaust gases during the operation of the engine, the engine being mountable to the vehicle,b. a storage tank for maintaining tack material stored in the storage tank under pressure;c. a first line connecting the exhaust pipe of the engine to the storage tank in a manner to permit transfer of the engine exhaust to the interior of the storage tank and to serve as a source of the pressure within the storage tank, andd. a second line connecting the storage tank to a spray nozzle in a manner to transfer the tack material in the storage tank to a spray nozzle. | <ol style="list-style-type: none">13. A motorized tack spraying vehicle comprising an engine-driven moving vehicle, said engine having an exhaust pipe, a tack material storage tank mounted to the vehicle for maintaining tack material stored in the storage tank under pressure during operation, a first line connecting the exhaust pipe of the vehicle engine to the storage tank in a manner to permit transfer of the engine exhaust to the interior of the storage tank and to serve as a source of pressure with the storage tank, and a second line connecting the storage tank to a spray nozzle in a manner to transfer the tack material in the storage tank to the spray nozzle. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

As can be seen from the foregoing, the two independent claims differ from one another primarily in that claim 1 is drawn only to the tack spraying device while claim 13 is drawn to a vehicle that includes a tack spraying device. The independent claims are obviously of differing

scope, but can be discussed together in view of the deficiencies in the art cited by the examiner.

The examiner has rejected claims 1-21 for obviousness in view Herzog as combined with Kirchner. Herzog teaches the use of exhaust gases to provide the pressure for the application of *water*. Herzog, Col. 2, ll. 15-41. Kirchner discloses a method of applying tack with a conventional pump. Kirchner, Col. 2, ll. 6-14.

When rejecting claims for obviousness under § 103, the examiner has the burden of establishing a *prima facie* case of obviousness. MPEP § 2142. The examiner has failed to meet his *prima facie* burden for several reasons.

When a *prima facie* case of obviousness is based upon a combination of references, the examiner must show, *inter alia*, that the prior art teaches or suggests a reason for the combination. In re Mills, 916 F.2d 680, 682 (Fed. Cir. 1990); MPEP § 2143.01. The examiner cannot use the applicant's invention as a template to simply piece the prior art together. In re Gorman, 933 F.2d 982, 987 (Fed. Cir. 1991); MPEP § 2141 (forbidding hindsight combinations). Rather, the basis for the combination must be found in the prior art.

The examiner has not made any showing of a basis for combining Herzog and Kirchner that exists in the prior art. Rather the examiner's statements in this regard consist of the following:

Herzog discloses a pressurization system for pressurizing *a liquid holding tank* (emphasis in original) on a truck for spraying water onto road surfaces (column 1, lines 7-12), but fails to disclose a tack material for spraying. Kirchner discloses a tack spraying apparatus 10 for mounting on a tanker trailer 12 for spraying pressurized tack material onto road surfaces. ***Therefore, it would have been obvious to one having ordinary skill in the art to have provided the device of Herzog with a tack material for spraying as suggested by Kirchner, since there is no preclusion on the system preventing it from spray [sic] tack material, and it would provide an alternative manner for distributing bituminous products to road surfaces*** (column 1, line 11). (emphasis added)

Examiner's July 1, 2002, Office Action, pp. 2-3 (paper no. 9).

The examiner's entire effort to establish a basis in the prior art can be fairly summed up as 1) Herzog does not *exclude* the use of its device to apply tack and 2) Kirchner provides an alternative manner for distributing bituminous products. The first basis cited by the examiner is clearly insufficient. That the cited reference may be capable of being modified to operate in the manner of the claimed invention is not sufficient to meet the examiner's burden; there must be a suggestion in the prior art to make the modification or combination. MPEP § 2143.01; In re Mills, 916 F.2d 680, 682 (Fed. Cir. 1990). Simply stating that nothing in the prior art precludes the claimed modification or combination does not establish a reason to make the modification and, therefore, cannot satisfy the examiner's burden.

The examiner's second articulated basis does not meet his *prima facie* burden either. As a preliminary matter, the applicant notes that Kirchner does not teach an "alternate manner for distributing bituminous products to road surfaces" as the examiner asserts. The examiner cites column 1, ln. 11 of Kirchner for this proposition. The cited section of Kirchner deals with the prior art, not the invention of Kirchner. Specifically, this section states that the prior art uses distributors for applying bituminous products to road surfaces. However, according to Kirchner, in the prior art, the bituminous material was hauled in one truck, transferred to a second truck that contained a distributor, and then applied to the road. Kirchner, Col. 1, ll. 10-25. Kirchner teaches making a distributor detachable and transferable so that the same truck that hauls the bituminous material may be used to distribute it. Kirchner, Col. 1, ll. 10-25; Col 1, ln. 60 - Col. 2, ln. 33. Significantly, however, Kirchner, like the prior art, uses a very conventional pump (34) to apply the bituminous material to the road. Thus, it is not accurate to state that Kirchner teaches an alternate method for

distributing bituminous products to road surface. Kirchner applies bituminous products in precisely the same manner as the prior devices -- with a pump. It just moves that pump from truck to truck, rather than moving the bituminous material.

The applicant's invention provides a *new source of pressure* for applying tack. Nothing in Kirchner teaches or suggests that alternative sources of pressure are desired. Rather, as noted above, Kirchner uses a very conventional *pump* (34) to apply bituminous material to the road. Nothing in Kirchner suggests any reason for one to use anything other than a pump to remove tack from the tank. In the absence of something in Kirchner that would suggest using a source of pressure other than the conventional pump, Kirchner simply does not provide a basis for combining its teachings with those of Herzog. Rather, what the examiner has plainly done is use the applicant's disclosure as a template, seeking out a pressurization system in one reference and a tack application system in another and combining them together based solely on the contents of the applicant's claims. Such hindsight reconstruction of the applicant's invention is prohibited, and is certainly not sufficient to establish the examiner's *prima facie* case of obviousness. MPEP §2143; In re Fritch, 972 F.2d 1260, 1266 (Fed. Cir. 1992).

To establish his *prima facie* case, the examiner must also show that there would have been a reasonable expectation of success. MPEP § 2143. However, there is no reason -- and certainly the examiner has not cited any such reason in the prior art -- for one to expect that the use of exhaust gases to pressurize and apply tack would be successful. Herzog certainly does not provide a basis for one to expect that its teachings could be utilized successfully in the application of tack. Herzog deals exclusively with the application of water. Tack is a substantially different material than water. It is much more viscous, and thus can be more

difficult to pump. Tack is also more likely to congeal than water, again making pumping difficult. *See, e.g.*, Kirchner, Col. 1, ll. 20-23. The mere fact that one might be able to use engine exhaust to pressurize and apply water does not mean that similar methods would be expected to work in the application of tack¹. In the absence of some showing by the examiner that one reasonably skilled in the art would have expected the use of engine exhaust to pressurize and apply tack to be successful, the examiner has met not met his *prima facie* burden and his rejection should be withdrawn.

To establish a *prima facie* case of obviousness, the examiner must also show that the prior art suggests the *desirability* of the claimed invention. MPEP § 2143.01. Nothing in the prior art suggests the desirability of using the pressurization technique of Herzog to apply tack, nor has the examiner pointed to any such teaching or suggestion. Similarly, nothing in Kirchner teaches or suggests the desirability of pressurizing tack with exhaust gases, nor has the examiner pointed to any such teaching. In the absence of such a showing, the examiner simply has not established a *prima facie* case of obviousness.

The examiner argues that because Herzog states in its “field of the invention” section that the invention disclosed therein “relates to a pressurization system for pressurizing a ‘liquid’ holding tank,” it would have been obvious to use the Herzog system with “*any type of liquid.*” Examiner’s July 1, 2002, Office Action, pg. 3 (paper no. 9)(emphasis added). This conclusion is simply unfounded. First, the field of the invention section is merely a statement of the area of art to which the invention pertains. MPEP § 608.01(c). It is not intended to recite what the invention is but merely the general field to which the invention relates. Second, although water is, of course, a liquid, it does not follow that because a system will move water, it will also move any other liquid -- a lesson learned by many a mischievous child who thought it might be neat to fill his water gun with syrup. In any event, Herzog certainly does not teach or suggest that its application system would work for tack, the relevant liquid in the present claims. In the absence of such a suggestion either in Herzog or elsewhere in the prior art, there is no basis to expect that the water application system disclosed in Herzog would work with tack.

Finally, the combination of Kirchner with Herzog would also render a central feature of the invention largely unnecessary. Kirchner contains a hydraulic pump 34 whose sole purpose is to remove tack from the tank. If the device of Kirchner were combined with Herzog, there would be no need to use the pressure created by the exhaust fumes to expel the tack from the tank. Thus, the combination of Kirchner and Herzog would require the principle of operation of the Kirchner device to be changed from a pump driven applicator to a vessel pressure driven applicator. It is improper for a proposed modification to change the principle of operation of a reference. MPEP § 2143.01. This is yet another reason why the combination of Herzog with Kirchner is inappropriate.

For the reasons stated above, the examiner has not established a *prima facie* case that independent claims 1 and 13 and the claims that depend therefrom are obvious. Therefore, the applicant requests that the rejections for all claims be withdrawn.

B. Claims 7-11 and 19-21

Claims 7-11 and 19-21 pertain to the size of the orifice in the recited nozzle. They are all dependent claims. None of the limitations contained in these claims are found in the prior art cited by the examiner. Claims 8 and 9 and claims 20 and 21 recite a functional limitation² on the size of the spray nozzle orifice, i.e. that it be larger than the diameter of polymer balls which can clog the nozzle. Claims 7, 10, 19 and 21 address the same issue, the size of the nozzle orifice; however, they do so with structural rather than functional language. The examiner has conceded

²

Of course, there is no prohibition against claiming limitations functionally, i.e., by what they do rather than what they are. MPEP § 2173.05(g).

that Kirchner, the only reference he has cited that discloses any type of tack application system, does not disclose any particular size for the orifices of its nozzles. Examiner's July 1, 2002, Office Action, pg. 3 (paper no. 9). Nonetheless, he has maintained his rejection of these claims.

The proper way to evaluate sizing requirements is set out in the MPEP at § 2144.04 IV(A). The relevant case is Gardner v. TEC Systems, Inc., 725 F.2d 1338 (Fed. Cir. 1984). In Gardner, the Federal Circuit upheld the district court's finding of obviousness because (1) the only difference between the prior art and the claimed device was a recitation of relative dimensions³, and (2) a device having the claimed dimensions *would not perform differently* than the prior art device. Gardner, 725 F.2d at 1349 (emphasis added). The same cannot be said for the present case. A device having the size limitations of the nozzle orifice would perform differently from the prior art - polymer balls would not get stuck in the nozzle of the claimed invention as frequently occurs in prior art devices and the claimed device would, therefore, dispense tack more evenly. Because a tack applicator having an orifice of the claimed size would perform differently than tack applicators known in the prior art, the examiner cannot simply disregard these limitations.

Unable to find these limitations explicitly taught or suggested in the prior art, the examiner has attempted to argue that nozzle openings claimed in the applicant's claims 7-11 and 19-21 are inherently disclosed in the prior art. Examiner's July 1, 2002, Office Action, pg. 3 (paper no. 9). To establish a rejection based on inherency, the examiner must provide "a basis in fact or technical

3

The applicant is not conceding that the only difference between the claimed invention and the prior art is the sizing of the orifice. Rather, this argument is presented in the alternative only, as it is unnecessary to reach these issues until the examiner establishes a proper *prima facie* case with respect to the independent claims, as discussed above.

reasoning” to support his conclusion that “the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art.” MPEP § 2112 (emphasis in original).

The examiner contends that it is inherent that the diameter of the orifice in the prior art would be large enough to maintain a nozzle discharge of a “highly viscous material” without clogging. Examiner’s July 1, 2002, Office Action, pg. 3 (paper no. 9). The applicant agrees that those skilled in the art would want their nozzles to smoothly discharge tack. However, they also want to make the orifice as small as possible and still accomplish this task. By narrowing the orifice, the tack can be dispersed over a greater area without increasing the pressure, in much the same way that placing one’s thumb over the mouth of a water hose extends the range of the hose.

In tack application, relatively smaller nozzle openings will work fine until they encounter a polymer ball that is too large to pass through the orifice. The ball will lodge in the opening; tack will build up around it, and soon the entire nozzle will be clogged. Thus, a nozzle may be flowing nicely at one point and hopelessly clogged a few days or even hours later. This is a problem commonly encountered in the tack application field. However, the references cited by the examiner do not mention the problem at all, much less provide a means of addressing it. Significantly, the examiner has cited nothing in the prior art which even recognizes polymer balls as the source of tack clogging problems. Rather, what the examiner has done is assume that Herzog and/or Kirchner have managed to solve this problem, apparently reasoning that because they didn’t bring it up, it must not be a problem. Of course, this reasoning is deeply flawed.

Using the same logic, one could conclude that the Wright brothers had solved the problems surrounding breaking the sound barrier because they didn’t mention the problem in their initial airplane patents or that Goddard had solved the problems of surviving the heat of reentry because

he didn't mention the need for insulation in his original rocket patents. Silence about a problem simply does not establish that the problem has been solved, and silence is all that the references cited by the examiner offer on the question of clogging and the solution of nozzle size. This silence is simply not sufficient to establish that the prior art nozzles would *necessarily* have been sized to prevent polymer ball clogging. In the absence of a showing on this point by the examiner, there is no reason to conclude that the limitations of claims 7-11 or 19-21 are inherently disclosed in the prior art.

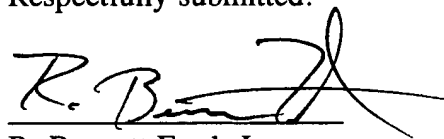
The examiner has cited no references which teach or suggest the limitations of claims 7-11 or 19-21, nor has he established that these limitations are inherently contained in the prior art. Accordingly, he has not met his *prima facie* burden with respect to these claims, and his obviousness rejection should be overturned for them as well.

IX Conclusion

For the reasons stated above, the examiner's rejections should be overturned and the claims remaining in the application should be allowed.

Dated: December 3, 2002

Respectfully submitted:



R. Bennett Ford, Jr.

Registration No. 39,193

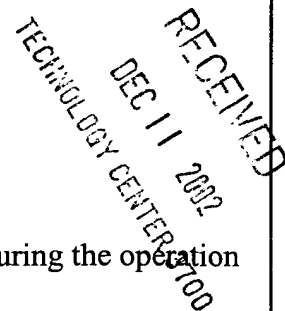
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Appendix

1. A tack spraying device mountable on a vehicle comprising:
 - an engine having an exhaust pipe for emitting exhaust gases during the operation of the engine, the engine being mountable to the vehicle,
 - a storage tank for maintaining tack material stored in the storage tank under pressure during operation,
 - a first line connecting the exhaust pipe of the engine to the storage tank in a manner to permit transfer of the engine exhaust to the interior of the storage tank and to serve as a source of the pressure within the storage tank, and
 - a second line connecting the storage tank to a spray nozzle in a manner to transfer the tack material in the storage tank to the spray nozzle.
2. A tack spraying device according to claim 1 wherein a pressure relief valve is operative attached to said storage tank to relieve the pressure in the storage tank at a pre-determined pressure level.
3. A tack spraying device according to claim 2 wherein the predetermined pressure level is about 4 psig or greater.
4. A tack spraying device according to claim 2 wherein the predetermined pressure level is about 14 psig.
5. A tack spraying device according to claim 2 wherein the predetermined pressure level is set a pressure sufficient to transfer the tack material from the storage tank to the spray nozzle at a rate of at least 0.02 gallons per square yard.
6. A tack spraying device according to claim 5 wherein said rate is between 0.02 and 0.08

gallons per square yard.

7. A tack spraying device according to claim 1 wherein the spray nozzle has an orifice with a nominal diameter of at least 0.375 inches and has a capacity to permit at least 14 gallons per minute of tack material to flow through the orifice at a pressure of at least about 3 psig with a spray angle of at least 75°
8. A tack spraying device according to claim 1 wherein the spray nozzle has an orifice with a nominal orifice diameter greater than any polymer ball that may develop in the storage tank during spraying of the tack material.
9. A tack spraying device having a tack material storage tank and a line operatively attached to the storage tank and a spray nozzle to permit tack material in the storage tank to flow to and through the spray nozzle, the improvement to which comprises the spray nozzle has an orifice with a nominal orifice diameter greater than any polymer ball that may develop in the storage tank during spraying of the tack material.
10. A tack spraying device according to claim 9 wherein the spray nozzle has an orifice with a nominal diameter of at least 0.375 inches and has a capacity to permit at least 14 gallons per minute of tack material to flow through the orifice at a pressure of at least about 3 psig with a spray angle of at least 75°.
11. A tack spraying device according to claim 10 wherein said capacity is set to permit about 14 to about 140 gallons per minute of tack material to flow through the orifice.
12. A tack spraying device according to claim 1 wherein the engine drives the vehicle.
13. A motorized tack spraying vehicle comprising an engine-driven moving vehicle, said engine having an exhaust pipe, a tack material storage tank mounted to the vehicle for maintaining

tack material stored in the storage tank under pressure during operation, a first line connecting the exhaust pipe of the vehicle engine to the storage tank in a manner to permit transfer of the engine exhaust to the interior of the storage tank and to serve as a source of the pressure with the storage tank, and a second line connecting the storage tank to a spray nozzle in a manner to transfer the tack material in the storage tank to the spray nozzle.

14. A motorized tack spraying vehicle according to claim 13 wherein a pressure relief valve is operative attached to said storage tank to relieve the pressure in the storage tank at a pre-determined pressure level.

15. A motorized tack spraying vehicle according to claim 14 wherein the pre-determined pressure level is about 4 psig or greater.

16. A motorized tack spraying vehicle according to claim 15 wherein the pre-determined pressure level is about 14 psig.

17. A motorized tack spraying vehicle according to claim 15 wherein the predetermined pressure level is set a pressure sufficient to transfer the tack material from the storage tank to the spray nozzle at a rate of at least 0.02 gallons per square yard.

18. A motorized tack spraying vehicle according to claim 17 wherein said rate is between 0.02 and 0.08 gallons per square yard.

19. A motorized tack spraying vehicle according to claim 13 wherein the spray nozzle has an orifice with a nominal diameter of at least 0.375 inches and has a capacity to permit at least 14 gallons per minute of tack material to flow through the orifice at a pressure of at least about 3 psig with a spray angle of at least 75°.

20. A motorized tack spraying vehicle according to claim 19 wherein said capacity is set to

permit from about 14 to about 140 gallons per minute of tack material to flow through the orifice.

21. A motorized tack spraying vehicle according to claim 14 wherein the spray nozzle has an orifice with a nominal orifice diameter greater than any polymer ball that may develop in the storage tank during spraying of the tack material.